

Crystal Structure of Heme Binding Enolase P46 from *Bacteroides fragilis*

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The anaerobic gram-negative bacterium *Bacteroides fragilis* is frequently found in intestines and is known to cause intra-abdominal infections. A 46 kDa heme binding protein (P46) from *B. fragilis* was found to be induced in iron restricted condition (1). The sequence of P46 shows it to be an enolase, an enzyme in glycolysis. Enolase forms dimers or octamers and the crystal structure of enolase from human, yeast, *Escherichia coli* and *Streptococcus pneumoniae* are known. But their structures do not explain heme binding to P46.

To investigate heme binding mechanism, we solved the crystal structure of P46 at 2.6 Å resolution. P46 forms an octamer in the crystal structure and solution. Furthermore, we measured the affinity of P46 for heme using surface plasmon resonance and found that the dissociation constant is 2.65 μM.

[1] Otto B.R, et al., *Infect Immun.*, 1996, **64**, 4345.

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